BY THE ORDER OF THE COMMANDER
30TH SPACE WING

AIR FORCE INSTRUCTION 91-110

30TH SPACE WING
Supplement 1

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Safety

NUCLEAR SAFETY REVIEW AND LAUNCH APPROVAL FOR SPACE OR MISSILE USE OF RADIOACTIVE MATERIAL AND NUCLEAR SYSTEMS

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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The OPR for this supplement is 30SW/SESI. This supplement implements and extends the guidance of Air Force Instruction (AFI) 91-110, ***Nuclear Safety Review And Launch Approval For Space Or Missile Use Of Radioactive Material And Nuclear Systems***, dated 28 June 2002. The AFI is published word-for-word without editorial review. 30SW supplemental material is indicated in bold face. This supplement describes 30SW procedures for use in conjunction with the basic AFI. Upon receipt of this integrated supplement discard the Air Force basic publication.

SUMMARY OF REVISIONS

This document is substantially revised and must be completely reviewed.

A bar (|) indicates a revision from the previous edition**.**

6.1. Range commanders must ensure that all parties comply with **Table 1** in AFI 91-110; this includes notification, reporting, and launch approval requirements.

6.1.1. (Added) It is the responsibility of the Commander of the 30SW, or their representative, to control the use of radioactive material on VAFB. Air Force policy regarding space and missile utilization of radiation sources is described in AFI 91-110. Radioactive materials (RAM) are covered under the NRC License and USAF Permits held by the 30SW or tenant units, from arrival at VAFB to the time of launch.

6.2. RADSAFCOM (Radiation Safety Committee):

6.2.1. The 30SW Radiation Safety Committee (RADSAFCOM) is the controlling body for nuclear safety review and launch approval on VAFB.

6.2.2. (Added) The RADSAFCOM members are, as approved by the Commander, 30SW, as follows:

Table 2. (Added) RADSAFCOM Members.

30SW/CV	Chairperson
30SW/SE	System Safety/Recorder
30MDOS/SGOAB	Base Radiation Safety Officer
2 ROPS/DOUF	Range Operations
30CES/CED	Explosive Ordnance Disposal (EOD)
30CES/CEX	Readiness
30CES/CEF	Fire Protection
30SW/SEW	Weapons Safety
Other representatives as necessary	

6.2.3. (Added) The RADSAFCOM reviews and evaluates Safety Analysis Summaries (SAS), Radiation Protection Plans (RPP), and briefings for the use of radioactive materials. This ensures conformance to the codes and regulations of the NRC and Air Force for the protection of personnel.

6.2.4. (Added) The RADSAFCOM will meet quarterly. Minutes will be distributed within 30 days. Radioactive material must be briefed by the Launch Agency to the RADSAFCOM two quarters (six months) prior to the arrival of RAM. Special RADSAFCOM meetings may be requested by the Launch Agency through 30SW/SESI by calling (805) 605-7246, DSN 275-7246.

6.2.5. (Added) RADSAFCOM approvals

6.2.5.1. (Added) The RADSAFCOM will grant “ground processing approval” after all briefings and regulation requirements have been met.

6.2.5.2. (Added) The Range User submits a request for launch approval, and the RADSAFCOM will grant “launch approval” after all requirements have been met. Launch approvals are normally granted approximately one month prior to launch.

6.3. (Added) 30SW/CV Responsibilities:

6.3.1. (Added) Ensures compliance with AFI 91-110. Enforces compliance with 30SWI91-110.

6.3.2. (Added) Chair RADSAFCOM

6.3.3. Issue Radiation Safety Committee Ground Processing Approval. Approval is given at the RADSAFCOM.

6.3.4. (Added) Issue Radiation Safety Committee Launch Approval for each launch containing RAM.

6.4. (Added) System Safety Responsibilities (30SW/SESI):

6.4.1. (Added) Ensure all parties comply with 30SWI91-110. Advises RADSAFCOM Chair of new programs with RAM.

6.4.2. (Added) OPR for the RADSAFCOM. Act as Recorder and conduct RADSAFCOM meetings.

6.4.3. (Added) Act on behalf of 30SW/CV for coordination of RADSAFCOM support in any RAM recovery effort.

6.4.4. (Added) Prepare Pre-Launch and Post-Launch message notification in accordance with **Table 1**, Step 4 and Step 5 (in AFI91-110).

6.4.4.1. (Added) Message will be sent to the following addresses:

6.4.4.1.1. (Added) /HQ AFSC KIRTLAND AFB NM//SEN//SEW

6.4.4.1.2. (Added) /30SW VANDENBERG AFB CA// SESI/SEGW//

6.4.4.1.3. (Added) /30MDOS VANDENBERG AFB CA//SGOAB//

6.4.4.1.4. (Added) /30CES VANDENBERG AFB CA//CED//

6.4.4.1.5. (Added) /30CES VANDENBERG AFB CA//CEX//

6.4.4.1.6. (Added) / 2ROPS VANDENBERG AFB CA//DOUF//

6.5. (Added) Base Radiation Safety Officers (RSO) duties:

6.5.1. (Added) Under supervision of the Base Radiation Safety Officer (RSO) 30MDOS/SGOAB, field project managers are charged with ensuring employees who work with radioactive materials are properly protected and dosimeter administration is properly maintained, if required (30SWI40-101, ***Managing Radioactive Material on VAFB***).

6.5.1.1. (Added) A description of personnel protection must be provided, which may include the use of film badges, dosimeters, shielding, radiation instrumentation, and air sampling equipment and exposure estimates of each operation.

6.5.1.2. (Added) The RSO monitors radiation levels and ensures exposure to handlers is as low as reasonable achievable. Allowable limits are prescribed by Title 10, United States Code of Federal Regulations (10 U.S.C.) and other appropriate Air Force instructions (30SWI40-101, ***Managing Radioactive Material on VAFB***).

6.5.2. (Added) Provide launch, uprange missile accident and RAM recovery support.

6.6. (Added) 30CES/CED Explosive Ordnance Disposal (EOD) Responsibilities:

6.6.1. (Added) Provide launch, uprange missile accident, and RAM recovery support.

6.6.1.1. (Added) Advise, escort, and recover hazardous materials.

6.6.1.2. (Added) Dispose of explosive residue as required.

6.6.1.3. (Added) Recover radioactive components.

6.7. (Added) 30CES/CEF Fire Protection Responsibilities:

6.7.1. (Added) Provide launch and missile accident support.

6.7.2. (Added) Assist in determining isolation area and downwind evacuation area, as required.

6.7.3. (Added) Perform rescue operations, setup initial patient treatment areas, perform emergency medical services, and prepare for patient transportation (air and ground).

6.7.4. (Added) Provide full offensive Hazardous Materials response, including emergency and full decontamination for patients and first responders.

6.7.5. (Added) Perform fire suppression operations.

6.7.6. (Added) Assist in establishing and maintaining adequate monitoring.

6.7.7. (Added) Provide 911 Emergency Services.

6.8. (Added) 30CES/CEX Readiness Responsibilities:

6.8.1. (Added) To confirm or deny the presence of radiological contamination.

6.8.2. (Added) Provide Initial Perimeter Definition (IPD) to determine the location of radiological contamination, as needed.

6.8.3. (Added) Provide the Contamination Control Station (CCS) upwind of the incident at the designated Entry Control Point (ECP), as needed.

6.8.4. (Added) Will assist the On-Scene Commander (OSC) in preparation for the arrival of the Response Task Force (RTF), as needed.

6.9. (Added) 2ROPS/DOUF responsibilities:

6.9.1. (Added) Provide Program Support Manager (PSM) as interface to Range User to coordinate requirements with the 30SW.

6.9.2. (Added) Schedule Range assets via OD 5134, ***Errant Missile Search and Recovery***, to support RAM recovery.

6.9.3. (Added) Financial POC for range and support range (if required) recovery support.

6.10. (Added) Range User's responsibilities:

6.10.1. (Added) MAJCOM, AFPEO, or AFSC provide launch forecast at least 180 days in advance of bringing radioactive material onto VAFB.

6.10.2. (Added) Notify 30SW/SESI (System Safety) and 30MDOS/SGOAB (Bioenvironmental Engineering) of their intent to bring radioactive material onto VAFB. This must be done at least 180 days in advance of bringing radioactive material onto VAFB.

6.10.3. (Added) Brief the RADSAFCOM on how the radioactive material will be used, handled, and stored. (See **Attachment 5 (Added)**)

6.10.4. (Added) The Range user must possess and provide a copy of and NRC license or Air Force permit to 30SW/SE and 30MDOS/SGOAB to bring the radioactive material onto VAFB.

6.10.5. (Added) For launches with RAM less than the threshold values, a Mission Assessment (MA) must be provided to 30SW/SESI. Threshold values are detailed in **Attachment 2** of AFI 91-110.

6.10.6. (Added) For launches with RAM greater than the threshold amounts a SAS (Safety Analysis Summary) and a RPP (Radiation Protection Plan) must be provided to 30SW/SESI and 30MDOS/SGOAB. Requirements for the SAS are detailed in **Attachment 3**. The RPP is included as an attachment to the SAS.

6.10.6.1. (Added) The RPP provides a complete plan for how radioactive material will be handled from arrival at the Range through launch and recovery (if necessary). This plan shall include any non-flight sources that will be used during Range processing, calibration, or testing. Provide a description of personnel protection, to include the use of film badges, dosimeters, shielding, radiation instrumentation, and air sampling equipment, and exposure estimates of each operation.

6.10.6.2. (Added) Provide 30SW/SESI, 30MDOS/SGOAB, and 2ROPS/DOUF with an Emergency Response Plan. (See **Attachment 6 (Added)**)

6.10.7. (Added) All procedures for handling of radioactive material must be submitted to the 30SW/SESI and 30MDOS/SGOAB for review and approval.

6.11. (Added) Accountability for and Disposition of RAM after an unsuccessful launch:

6.11.1. (Added) Notify RADSAFCOM within 24 hours.

6.11.2. (Added) All radioactive material (RAM) launched at VAFB must be accounted for and disposed of properly. Every reasonable effort must be made to recover radioactive materials (booster & payloads) after a failed launch. The launch agency will provide a detailed Recovery & Disposition Plan as required in the SAS. In all cases, the Range User is responsible for coordinating and funding the recovery of all radioactive material. The 2 ROPS/DOUF shall coordinate any wing support for the recovery of RAM (OD 5134, ***Errant Missile Search and Recovery***).

6.11.3. (Added) Following a launch failure, 30SW/SEO (Mission Flight Control) will determine a preliminary debris impact location and pass this information to 2RPOS/DOU, 30SW/SE, the launch agency, and RADSAFCOM. The Range User will coordinate with the RADSAFCOM on the status of the RAM. The RADSAFCOM will notify the launch agency and appropriate wing agencies if recovery of RAM is required (OD 5134, ***Errant Missile Search and Recovery***). See **Attachment 6 (Added)** for the ERP (Emergency Response Plan).

6.11.3.1. (Added) For uprange, VAFB area, land and shallow water (less than six feet) impact, the Launch Support Team and the Base RSO will accomplish impact area safing and monitoring under control of the on-scene commander. The Base Readiness Support Team will accomplish initial area monitoring with Explosive Ordnance Disposal (EOD) personnel. Security will be accomplished according to the 30SW Oplan 32-1, ***Disaster Preparedness Operations Plan***. The 30SW RADSAFCOM and appropriate accident or incident investigating board will be convened. Recovery will be accomplished in accordance with SAS and wing instructions.

6.11.3.2. (Added) For downrange water impact, the RADSAFCOM or Range User shall determine if recovery is required, the Range User will coordinate RAM recovery in accordance with the SAS. The Base Radiation Safety Officer (RSO) and EOD are available to assist in the recovery effort.

6.11.3.3. (Added) Downrange land impact is the Range User's responsibility, and the downrange RSO may assist.

Attachment 5 (Added)

MISSION ASSESSMENT DESCRIPTION

A5.1. (Added) For launches that use quantities of radioactive material less than the analysis threshold quantity (as specified in **Attachment 2**) a mission assessment (MA) will be required. The MA will be required to contain the following information:

A5.1.1. (Added) Mission description

A5.1.2. (Added) Point of Contact (POC), to include contact information

A5.1.3. (Added) Single launch or series

A5.1.4. (Added) Program Name

A5.1.5. (Added) Launch vehicle

A5.1.6. (Added) Launch facility

A5.1.7. (Added) Launch date

A5.1.8. (Added) Impact predictions

A5.1.9. (Added) Location (payload or vehicle)

A5.1.10. (Added) Date, type and result of last swipe test

A5.1.11. (Added) Intended use

A5.1.12. (Added) Radioactive material

A5.1.13. (Added) Radionuclide

A5.1.14. (Added) Activity

A5.1.15. (Added) License or permit

A5.1.16. (Added) Normal mission analysis

A5.1.17. (Added) Handling procedures

A5.1.18. (Added) Monitoring procedures

A5.1.19. (Added) Disposition/Ultimate fate of the material

A5.1.20. (Added) Accident evaluation: contingency options and operations

A5.2. (Added) At the discretion of the Range Commander, include the radiation protection plan and the environmental assessment or statement as appendices to the SAS. (See AFI 32-7061, ***Environmental Assessment & Statements***).

A5.3. (Added) In addition, 30SW Range Safety may require assessment of the accident risk as defined in Mil-Std-882D, ***System Safety Program Requirements***, from the System Program Office (SPO) or program manager. This can be included as part of the Safety Assessment Report (SAR).

Attachment 6 (Added)

EMERGENCY RESPONSE PLAN

A6.1. (Added) If RADSAFCOM directs the Range User to recover radioactive material, the RADSAFCOM will support the Range User's Recovery Team. The Recovery Team will be composed of the following personnel, as required:

A6.1.1. (Added) 30SW/SESI System Safety

A6.1.2. (Added) RSO (Radiation Safety Officer) 30MDOS/SGOAB Bioenvironmental Engineering

A6.1.3. (Added) 30CES/CEX Explosive Ordnance Disposal (EOD), 30CES/CEF Fire Protection, 30 CES/CED Readiness

A6.1.4. (Added) PSM (Program Support Manager) 2ROPS/DOUF

A6.1.5. (Added) Launch Disaster Control Group representative (ground impact)

A6.1.6. (Added) Recovery Agency, NAWC or US Navy (water impact)

A6.1.7. (Added) Range User(s) system expert knowledgeable about all vehicle hazards, mainly radiation and explosives hazards.

A6.1.8. (Added) Others, as necessary (e.g. DOE, NRO, payload specialist, etc.)

A6.2. (Added) The agency responsible for the actual salvage operation will develop the recovery plan. The Recovery Agency will need the following information:

A6.2.1. (Added) Exact location of debris or best available information.

A6.2.2. (Added) Type of ordnance, radioactive material or other hazards on board.

A6.2.3. (Added) Approximate size, weight and type of material to be recovered.

A6.2.4. (Added) Classification of material to be recovered.

A6.2.5. (Added) Recovered debris disposition.

A6.2.6. (Added) Funding information.

A6.2.7. (Added) Launch agency and 30SW POC: Name, Phone #, and Mailing address

A6.3. (Added) Prior to implementation of the Recovery Plan, the Recovery Team will be briefed (by the Range User) on the following information:

A6.3.1. (Added) Exact location of debris or best available information.

A6.3.2. (Added) Type of ordnance and other hazards on board.

A6.3.3. (Added) Radioactive material status

A6.3.4. (Added) Approximate size, weight and type of material to be recovered.

A6.3.5. (Added) Classification of material to be recovered.

A6.3.6. (Added) Recovered debris disposition.

A6.4. (Added) The Recovery Plan shall contain the following information:

A6.4.1. (Added) Names and contact information of each team member

A6.4.2. (Added) Explosives information

A6.4.2.1. (Added) Safe handling and storage

A6.4.2.2. (Added) Clearance areas for non-essential personnel

A6.4.2.3. (Added) Safing devices that would be required

A6.4.2.4. (Added) Hot work permits (if necessary)

A6.4.2.5. (Added) Transportation requirements

A6.4.3. (Added) Radioactive material

A6.4.3.1. (Added) Radiological support group

A6.4.3.2. (Added) Monitoring and surveillance

A6.4.3.3. (Added) Safe handling and storage

A6.4.3.4. (Added) Approved containers

A6.4.3.5. (Added) Guidance and consultation

A6.4.3.6. (Added) Transportation requirements

A6.4.4. (Added) Toxic material

A6.4.4.1. (Added) Containers to be used

A6.4.4.2. (Added) Labeling of the containers

A6.4.4.3. (Added) Leak detection methods

A6.4.4.4. (Added) Processes for handling leaks

A6.4.4.5. (Added) Transportation requirements

A6.4.5. (Added) Disposition of the RAM

A6.4.6. (Added) 30SW and Range support required

A6.5. (Added) A schedule for execution of the Recovery Plan shall be developed. Status reporting shall be presented (at an agreed to frequency) to the RADSAFCOM. The RADSAFCOM shall reconvene as often as necessary.

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